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ABSTRACT

A workplace literacy project to prepare Houston Lighting and Power Company employees for the commercial driver's licence (CDL) exam was evaluated. The following four components of Steele's (1990) evaluation model were used to evaluate the project: proof of effect, judgment against criteria, critical questions, and valuing. The evaluation revealed a high quality program that included use of the Tests of Adult Basic Education for assessment, curriculum design and content based on assessment of job requirements, and pilot testing with 20 students and demonstration of the main instructional program. Of drivers enrolled in the class, 99 percent passed the CDL test. Students indicated a desire to further their learning. The evaluation assessed whether project objectives were met, namely, whether drivers passed the CDL exam and employees demonstrated job literacy skills. The following activities guided the accomplishment of these objectives: task analysis of job skills for literacy requirements; development of curriculum, a recruitment strategy, an instructional system and materials, and a job-specific assessment instrument; delivery of a pilot demonstration and demonstration class; evaluation; and follow-up. Consideration of critical questions determined that a work force literacy program was appropriate and that unexpected occurrences influenced project outcomes. Employees felt good about the learning experience and families were supportive. (12 references) (YLB)

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EVALUATION OF A WORKPLACE LITERACY PROGRAM: A COOPERATIVE EFFORT BETWEEN HOUSTON LIGHTING AND POWER COMPANY AND NORTH HARRIS COUNTY COLLEGE

by

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INTRODUCTION

"Evaluation" is a concept which usually generates feelings of negativity by those individuals being evaluated, particularly if an external evaluator is being utilized. Because of mistakes, misunderstandings, and sometimes, improper attitudes about the role of the evaluator, the image suggested by Maanen (1979) of an external evaluator is occasionally warranted ". . .a steely-eyed 'efficiency expert' who marches semi-annually into program settings to disrupt the established enterprise and cast a disparaging shadow over the efforts of a hardworking staff."

However, the evaluator must keep in mind why evaluations are important - the improvement of programmatic or organizational activities. The evaluator's primary responsibility is to people, not things, i.e., outputs, products, etc. Therefore, since there are many audiences involved in an evaluation, - participants, teachers, administrators, funding agents - the needs of all must be considered in the activities and final analysis. Scriven (1991) believes that "goal-free" evaluation is the best approach because the evaluator does not consider the program goals and simply lets the information flow from observations, conversations, and other related activities. This process does not enable anyone to influence the evaluation activity. However, Strake (1991) is more inclined to let program stakeholders influence the purpose and conduct of the evaluation, preferring to believe that evaluation can provide a service and become useful to the different audiences involved.

This facilitator role is also the approach of the staff of the Texas Center for Adult Literacy and Learning (TCALL). Unless the evaluation product can be utilized for program improvement, either immediately or in the future, why spend the time, energy, and money to do it?

Therefore, in evaluating this project, the model proposed by Steele (1990) in the Handbook of Adult and Continuing Education

was utilized. It provides flexibility while enabling the evaluator to examine specific areas of endeavor. This, in turn, fosters data for improved decision-making by as many audiences as possible, e.g., "Should a similar program be funded?" "What changes should occur in curriculum development, teaching style(s) or recruitment?" "How should future contracts for a similar program be worded?"

Principle components of the model, utilized by TCALL staff in previous evaluation projects, are:

(1). Proof of effect - determining if results are caused by program activities, by other events, or merely by chance.

(2). Judgment against criteria - compares "what is" with what was planned, or "what should be" as determined by the program goals or objectives.

(3.) Critical questions - those questions the primary stakeholders are inclined to ask. This aspect is more dynamic because in social research, the questions may change as the process continues.

(4.) Valuing - determining worth. For example, how do the participants value their experiences?

Initial Evaluation Project Information

The Commercial Motor Vehicle Safety Act of 1986 requires all commercial motor vehicle drivers to obtain a commercial driver's license (CDL) by April 1, 1992 (approximately 800,000 drivers in Texas). All applicants must pass one or more written examinations - a general knowledge exam, and additional exams for special endorsements or restrictions. An oral exam is also available in most states, including Texas, but it requires the same extensive preparation as do the written exams.

In March, 1990, staff of TCALL were contacted to ascertain their interest in evaluating the workplace literacy project. A positive response, plus some information about the Center, were forwarded to

North Harris County College (NHCC). Later, upon request from staff at NHCC, an evaluation plan was developed and submitted to NHCC by the TCALL staff for approval. Once approved, a contract was then signed by the appropriate officials of both institutions.

PROOF OF EFFECT

1. Providing a Quality Program

Underlying all other accomplishments in any educational endeavor is a quality instructional program. The CDL program was designed with four principle components: (a) comprehensive, but non-threatening assessment procedures, (b) a curriculum which was contextually meaningful to the participants and purposeful for program goals, (c) pilot classes to field-test the planned instructional program e.g., assessment procedures, curriculum, teaching strategies, and other components, and (d) "power" classes for the main instructional program.

(a) Initially, assessment was conducted using, the CDL Basic Skills Assessment developed by staff at the Institute for the Study of Adult Literacy, Pennslyvania State University. However, after using the Tests of Adult Basic Education, both long form and locator versions, that instrument seemed more appropriate to the project and was used more extensively throughout most of the program. This test was the most commonly used assessment instrument in the U.S. for adult literacy at the time this project was being conducted.

(b) The curriculum design and content were based upon assessments of job requirements made through a "modified" job audit recommended by those who have acquired expertise in workplace literacy (Askov, et al., 1989; Drew and Mikulecky, 1988; Wedman, J. M., and Robinson, R., 1990). The curriculum was developed in a contextually relevant format, again following the recommendations of those individuals who are

recognized as leaders in workforce literacy (Askov. et al., 1989; Brown,1990; Drew and Mikulecky, 1988, Sticht and Mikulecky,1984).

(c) A pilot class was held to field-test and evaluate the curriculum and the classroom teaching. These were visited by the evaluation team several times and observations were shared with the project staff. From the formative evaluations of both the project staff and the evaluation team, changes deemed appropriate for class improvement were implemented in the power classes which followed.

(d) The power classes were also visited by the evaluation team members and again, comments about the activities were shared with project staff. Those are discussed elsewhere in this report.

2. Completing the CDL test successfully

Of those drivers who enrolled in the "power class", 99% passed the CDL test. This pass-rate is supurb. All adult education teachers would be elated to have such success or even something close to it. At the time the initial draft of this report was being developed, the student who had completed the power learning course and had not passed the CDL test was still pursuing that quest for passing the test.

3. Furthering one's learning

One of the goals of the NHCC staff was to improve not only the drivers' competency in their driving abilities, but to also develop within them the desire to continue their education in whatever area they wished to obtain more knowledge. Realizing that individuals who are functioning below the high school equivalency level have needs which they consider more important than continuing education, this goal was considered "chancy", at best.

When the evaluation staff visited the power class for the second time in May, 1991, one individual who had already passed the CDL test had returned to class to "learn more". When interviewed by the evaluation team, he indicated that he had found "learning" to be a pleasant experience and he wanted more. He was beginning his quest by becoming more informed about driving and planned to learn more about other aspects of his job. During the next few weeks, several other drivers also returned to the class after passing the test for the same reason(s).

While interviewing other students in the power class, the TCALL staff found several who also wanted to take other classes if offered the opportunity. They had also discovered that they, indeed, could learn new "things" and this experience had motivated them to want to learn more. Telephone interviews with other students indicated that this desire did exist. The kinds of knowledge wanted by those interviewed ranged from job-related information to skills for coping with insurance and tax information. Similar responses were obtained by the teaching staff during informal discussions with students as reported to the evaluation team.

JUDGMENT AGAINST CRITERIA

The primary criteria which guided the development of this project were the following objectives:

1. After instruction, a driver will be able to pass the driver certification test required for licensing by the Texas Department of Public Safety according to the criteria established by the Texas Department of Public Safety and the Texas Department of Transportation; and

2. Presented with a written, oral, or simulated representation of a situation which requires a demonstration of literacy skills in combination with job skills associated with the job of a vehicle driver, the employee will be able to demonstrate competency according to the standards set by the Houston Lighting and Power Company (HLPC). Specific activities

were developed to guide the progress toward these objectives. Each of those activities is discussed in regard to its degree of accomplishment.

1. Task analysis of job skills for literacy requirements

Through a cooperative effort between staffs of both NHCC and HLPC, a task analysis, or "modified" job audit was conducted. Data from this audit were the basis for the curriculum which was developed for the project. (For example, one of the skills identified as needed by the drivers included . . . "interpreting material catalogs, work orders, street guides, and related line maps. . ."

2. Development of curricula

The curriculum for this project was based upon two principal products. *The R.O.A.D. (Real Opportunities for Advancement and Development) to Success*, developed by staff at the Institute for the Study of Adult Literacy, Pennsylvania State University, is a basic skills course containing interactive computer-based courseware and print-based materials to assist drivers in developing reading skills in preparing for the CDL test. That curriculum was developed in cooperation with the Pennsylvania Department of Education, the American Federation of State, County, and Municipal Employees, and the Pennsylvania Department of Transportation. An evaluation of the course-of-study (Brown, 1990) concluded that the content effectively increased the job-related skills of transportation employees while increasing their abilities to comprehend the manual and pass the CDL examination. In addition, participation in the program increased workers' confidence in their abilities to pass the examination. The program has been utilized in many states by several organizations and agencies for CDL training classes.

The second product was the *Texas Commercial Motor Vehicle Drivers Handbook* which was developed to assist drivers in preparing for the CDL test. It contains seven sections, i.e., driving safety, transportation, cargo safety, air brakes, etc., which contain key points throughout and provide relevant

study and review questions at the end of the chapters. It is comprehensive in design, easy to follow, and utilizes practical examples, including illustrations to emphasize key points.

3. Development of a recruitment strategy

The project staff had anticipated that there would be opportunities for the drivers to participate in classes during "company time". That anticipation was one of the reasons for the target power class enrollment figure of 200 drivers being included in the project proposal. However, when that requirement was not implemented by the company, recruitment efforts by the project staff and by some drivers in the program were not sufficient to achieve the goal of 200 in both the pilot and power classes.

4. Development of instructional system and materials

During the summer of 1990, TCALL staff periodically visited the literacy project staff to (a) learn as much about the project activities as possible, (b) observe the staff in their curriculum development procedures, and (c) ascertain what problems, if any, were affecting preparations for initiating the first classes. Interactions with project staff, both individually and in groups, enabled both groups (NHCC and TCALL) to reach clarity about proposed project activities, including staffing for the pilot class, recruitment of students, and location of classroom sites.

Teachers were employed and trained by the NHCC project staff. Principles of adult education were followed in the training in order for the teachers to learn not only the kinds of materials they would be teaching, but also how to teach adults trying to learn in a stressful situation.

Materials were developed specifically for the HLPC employees to pursue their studies to obtain the CDL. Materials contained job-related information based upon the "modified" job audits conducted by the project staff. They were reviewed by staff of both NHCC and HLPC before being included in the instructional program.

5. Development and administration of a job-specific assessment instrument

The level of knowledge of each student/driver was assessed by a formal testing procedure (described previously), plus an interview. This assured that any data pertinent to the student's ability to begin studying at a particular level of competence which might be missed by the formal test, would be ascertained through the informal interview.

6. Develop and implement a career counseling and management system for participants

This objective was eliminated through negotiations with the funding agency.

7. Delivery of a pilot demonstration class for 20 employees

The pilot class began in August, 1990. The TCALL evaluation staff observed the second meeting of the pilot class. The classroom was well lighted, roomy, contained tables and chairs for the students, and had brightly-colored safety signs on the walls. The project director introduced the teacher to those who had not attended the first class and explained the purpose of the class again for those individuals. There were about 20 students in attendance.

The teacher established good rapport with the participants and used a question-and-answer format to elicit their participation. Most became actively involved in the discussions, although a few chose not to do so. Students were encouraged to help each other when assistance seemed needed. In general, the TCALL staff felt comfortable with the class setting and the instructional approach. However, they indicated to the project director that the pace seemed somewhat slow because most of the students were staying ahead of the teacher in their workbooks during the evening class. There was no way, from one observation, to ascertain if some students would be unable to maintain the pace even though others apparently were staying ahead of the instruction.

The following month, another class visit was made by TCALL staff and several changes had occurred:

a. Attendance had dropped somewhat because some of the participants felt they could proceed "on their own" faster than they could in the class.

b. The class had been divided into two ability groups to provide more individualized instruction and to enable students with similar ability-levels to participate in the same group. This, in turn, seemed to foster much more information exchange among the students in each group.

c. No name cards were needed because everyone knew everyone else in the class and a friendly, informal atmosphere seemed to have been created.

d. In addition to the teacher asking questions about the lesson, students were observed interacting for clarification of different topics and content. Ample time was given for correct answers to be recorded in the workbooks and questions were repeated until it seemed that everyone had attained the desired content.

e. Although attendance was lower, those in attendance were genuinely concerned with learning the material being discussed. Both teachers seemed sensitive to the needs of their students and the students realized that there were no "dumb questions" in the classes.

8. Formative and summative evaluations and revisions of the model

Upon completion of the pilot class, the NHCC project staff, plus one member of the evaluation staff, evaluated the model and made the apparent needed changes in both content and teaching strategies. These, then, were implemented with the "power" classes which began within a short time.

9. Delivery of a demonstration class to the remaining 180 employees in need of training

In March, 1991, the regular class with the revised curriculum from the pilot class was visited by evaluation team members. The classroom site had changed and although the "physical" quality had decreased in regard to lighting and physical surroundings, i.e., walls and ceiling, the students seemed to be comfortable. The revised curriculum was basically designed as "self-paced". Participants were divided into two groups - those who could read the materials in the *Texas Commercial Motor Vehicle Drivers Handbook* and those who were at lower reading levels. Instructors were working with both groups - the higher-reading group was seated at tables in a "U-design" facing the front of the room, and the lower-reading group was seated around tables in another part of the room.

At the beginning of class, the instructors expressed to the students their concerns about the students' apparent desire to "hurry through the lesson and get out the door." They felt that this could lead to a possible tendency to also hurry on the CDL test and result in mistakes which would lower one's score. After that discussion, a film about mountain driving was shown, followed by a discussion of the major concepts contained therein which were then put on the chalkboard for emphasis. One instructor was well aware of not only the important concepts, but also the "slang" words used by the drivers and was able to relate those in a meaningful context to the students. In addition, he was able to emphasize those words and concepts which would probably be found on the test. It was quite apparent that the drivers found this to be reassuring as they moved through the content of the study handbook.

The goal of 180 additional employees was not reached for the power classes. "Company time" was not provided for employees to attend classes as anticipated by the project staff. However, of the 1200 employees in the target pool, 1190 were assessed by both the TABE and the CDL test in January. In addition, more than 500 other drivers were enrolled in a one-day training session in "test taking" skills. The project staff is to be commended for its commitment to reaching as many employees as possible even though their original plans for recruitment were not supported by the company.

10. Develop continuation plan and long range tracking of participants

Follow-up was conducted for 90 days after the project was completed to ascertain if further services could be provided by NHCC staff. In addition, materials have been given to HLPC staff for use with other employees who may need training for the CDL test. Consultant services are also available to the company from NHCC staff when needed.

CRITICAL QUESTIONS

1. ***Was the philosophy underlying the project appropriate for the clientele being served?*** In general, orientations, or philosophical approaches to literacy on the workplace follow two themes; *worksite literacy*, in which workers or potential workers are trained in skills for specific jobs only, and *workplace*, or *workforce literacy* where workers are trained for specific jobs, but also pursue basic literacy skills to enable them to transfer to other jobs or tasks in the worksite (Chase, 1990; Spradling, 1990). The latter was the underlying approach for this project and the evaluation team definitely supports this choice. Although faster gains seem to occur in learning which is *worksite* oriented, when new tasks must be met, those workers must be retrained for specific skills as they are needed. In a *workforce literacy* program, knowledge and skills learned which extend beyond those required for specific tasks can often be transferred and utilized in the new work situation. Although these programs may require more time and support initially, the learning is more useful for much longer periods of time and prepares the worker to be more functional in the workforce. According to Bernstein (1988), this is the best approach if the United States is to be able to remain competitive in the international workforce arena in the future. The billions of dollars being spent tp retrain millions of displaced workers must be utilized more efficiently to successfully compete with other countries.

One member of the evaluation team participated in a *worksite literacy* program for preparing drivers for the CDL test in another state. The instructor in that program was very clear in explaining that she was not interested in the literacy needs nor the transfer skills of the participants. Her purpose was to prepare drivers to pass the CDL examination either in writing or orally. She taught strictly to the test and believed she was providing the service the company wanted without any frills or additional activities. Discussing the merits of *workforce literacy* with her was a moot point. She was not concerned that drivers may pass the test without having the ability to read or interpret important highway signs or markers. Although she recognized the importance of truck drivers being able to read, she rationalized her approach to the testing issue by emphasizing that she considered saving jobs more important than literacy, safety concerns notwithstanding. In the opinion of the evaluation team member who observed that approach, the program designed and implemented by the NHCC staff was more professional, more futuristic, and more related to the national goals of developing a competitive workforce through a well trained and prepared body of available workers.

2. What unexpected occurrences influenced the outcomes of the project?

The most influential unexpected occurrence was the reorganization and change of leadership at HLPC during fall, 1990. Virtually all of the "contact" people for the NHCC project staff changed, resulting in several delays, the most critical being the assessment schedule which was delayed for several months. This, in turn, delayed all other project activities which were dependent upon the assessment procedures.

Another important occurrence was the change of project directors at NHCC several months into the project. When people are employed, there is no assurance that changes in their lives will not prohibit their continuing in their employment roles. Those conditions

do occur and must be dealt with by institutional leaders. In the case of this project, the new director had already been serving as a consultant to the project and her background, professional preparation, and experience made her a logical choice for the position. Fortunately, she was both willing and able to assume the position and gave excellent leadership to the project. However, even under ideal conditions, changes in the leadership of educational activities often cause some delays in implementing program priorities. In this project, those were minimal.

A change in the size of the target population, determined by the company, also influenced progress. The original agreed-upon population - 2000 drivers - was reduced, for company budget purposes, to 900. It was subsequently raised to 1200. In essence, the project staff, for a given period of time, was unable to determine the exact size of the available target group.

Another occurrence was the unexpected lack of availability of the program (classes) on "company time" as had been anticipated by the project staff. This reduced enrollments in the power classes below what had been expected and resulted in some disappointment by the project staff.

VALUING

1. Many of the employees who participated in the CDL classes felt good about what they had learned about themselves as well as what they had learned about driving. As one individual indicated in a follow-up interview, " I really feel good about accomplishing something. It was something I had set out to do and I accomplished it." Others indicated that they weren't accustomed to setting a learning goal and then completing it. "I couldn't have done it without you all (the teaching staff). There's no way I could have done it."

2. Some employees indicated that they would attend other classes if HLPC would offer them. However, almost all prefer job-related classes which would benefit them in their present work or prepare them for future jobs within the company. In addition, classes to prepare them for the GED test were desired by several of the students who had just completed their CDL test. Some who had just passed the test were not interested in any further classes of any kind.

3. The families of those who completed the program were very supportive of the learning efforts. In the interview immediately following the CDL test, all of those employees who participated in the classes were anxious to tell their families about their success on the test. They were also proud to share their success with co-workers and indicated that co-workers were just as anxious to learn about their test results as the students themselves. Family celebrations were held for some of those who passed the test after participating in the classes.

CONCLUSIONS

1. In general, the objectives of the project were attained by the project staff.

2. The "pass" rate on the CDL test by those employees who participated in the power classes exceeded the expectations of project staff and evaluation teams members alike.

3. Good adult education principles and practices were implemented throughout the project, resulting in successful performances by the employees on the CDL test, plus positive attitudes toward further education by those same employees.

RECOMMENDATIONS

1. The staff at NHCC should pursue further programs in workforce literacy because of the knowledge learned through their experiences in the project.

2. Professionals in other institutions and organizations should avail themselves of the information contained in the final report from this project before attempting to implement similar programs in their own communities.

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